

## II. REMARKS / ARGUMENTS

### A. Summary of the Amendments

The present application now contains twenty-seven (27) claims, numbered 3-28 and 37.

Claims 3, 5, 6, 8, 9, 16-21 and 26-28 have been amended to clarify the subject matter being claimed.

Claims 1, 2 and 29-36 have been cancelled without prejudice. New claim 37 has been added.

No new subject matter has been added to the application by way of the present amendment.

### B. Rejection of Claims 1-3, 18-20, 26, 28, 29, 31 and 33-36 under 35 USC 102

On page 2 of the Office Action, the Examiner has rejected claims 1-3, 18-20, 26, 28, 29, 31 and 33-36 under 35 USC 102(b) as being anticipated by U.S. Patent 6,134,253 to Munks *et al.* (hereinafter referred to as "Munks"). With all due respect, it is noted that the rejection under 35 USC 102(b) is improper since the present application was filed on June 28, 2001, which is *less* than one year after publication of Munks (*viz.*, October 17, 2000). For that reason alone, the Examiner is respectfully requested to withdraw the rejection under 35 USC 102(b).

Notwithstanding the impropriety of the Examiner's rejection, in the interest of advancing prosecution, as described below, it is respectfully submitted that claims 3, 18-20, 26 and

28, as amended, are in condition for allowance. For their part, claims 1, 2, 29, 31 and 33-36 have been cancelled and thus the Examiner's rejection of these claims is moot.

Independent claim 3

For ease of reference, claim 3, as amended, is reproduced below with portions being emphasized:

An optical signal generator, comprising:

an optical source adapted to generate an optical signal including a **plurality of carrier signals** at respective generated carrier frequencies that are adjustable by corresponding frequency control signals, each carrier signal being associated with a respective target carrier frequency;

a multi-channel optical filter having a filter input port connected to the optical source and having a plurality of filter output ports, each filter output port being associated with a respective optical channel having a pass band surrounding a different respective channel center frequency;

for each target carrier frequency, a first detection unit and a second detection unit respectively associated with said target carrier frequency, each connected to a different one of the filter output ports, and each adapted to output an indication of a characteristic of said target carrier frequency in the optical signal present at the filter output port to which it is connected, **wherein the filter output port connected to one of the first detection unit and the second detection unit respectively associated with a first target carrier frequency is connected to one of the first detection unit and the second detection unit respectively associated with a second target carrier frequency different from the first target carrier frequency**; and

a control unit connected to the first detection unit and the second detection unit respectively associated with each target carrier frequency and to the optical source, said control unit being operable to generate the frequency control signal corresponding to each particular carrier signal as a function of the output of the first detection unit and the second detection unit respectively associated with

the target carrier frequency that is associated with said particular carrier signal, thereby to align the generated carrier frequency of said particular carrier signal with the target carrier frequency associated with said particular carrier signal.

It is respectfully submitted that Munks does not teach or suggest an optical signal generator for generating a plurality of carrier signals at respective generated carrier frequencies and each associated with a respective target carrier frequency, as claimed. In particular, Munks does not teach or suggest an optical signal generator comprising:

- “a multi-channel optical filter [...] having a plurality of filter output ports”; and
- “for each target carrier frequency, a first detection unit and a second detection unit respectively associated with said target carrier frequency [and] each connected to a different one of the filter output ports, [...] wherein the filter output port connected to one of the first detection unit and the second detection unit respectively associated with a first target carrier frequency is connected to one of the first detection unit and the second detection unit respectively associated with a second target carrier frequency different from the first target carrier frequency”.

Munks describes an apparatus for stabilizing the wavelength of laser radiation. In each described embodiment except one, Munks’ apparatus includes a single laser for producing a single beam at a particular wavelength, i.e., a single carrier signal (see Figures 1, 2, 8, 10, 13 and 14 and their respective descriptions in Munks). These single laser / single carrier signal embodiments are of no relevance to the claimed optical signal generator, which is directed to generating a plurality of carrier signals at respective generated carrier frequencies.

The only embodiment of Munks’ apparatus that includes two lasers for producing two beams at different wavelengths, i.e., two carrier signals, is shown in Figure 15. In this embodiment, Munks’ apparatus includes an optical filter (32) receiving the two laser beams and having four “outputs” respectively connected to four detectors, namely: a first output connected to a first detector (40) for releasing thereto a first filtered beam (447); a

second output connected to a second detector (42) for releasing thereto a second filtered beam (445); a third output connected to a third detector (460) for releasing thereto a third filtered beam; and a fourth output connected to a fourth detector (453) for releasing thereto a fourth filtered beam.

Thus, the first and second detectors (40, 42), which are used to stabilize the wavelength of the first laser beam, are respectively connected to the first and second outputs of the optical filter (32). Similarly, the third and fourth detectors (460, 453), which are used to stabilize the wavelength of the second laser beam, are respectively connected to the third and fourth outputs of the optical filter (32). Clearly, in Munks' apparatus, neither of the first and second outputs of the optical filter (32) is connected to one of the third and fourth detectors (460, 453). Similarly, neither of the third and fourth outputs of the optical filter (32) is connected to one of the first and second detectors (40, 42).

Therefore, Munks does not teach or suggest the claimed scenario whereby one of two optical signals that are used to align the generated carrier frequency of a first carrier signal with a first target carrier frequency is also used to align the generated carrier frequency of a second carrier signal with a second target carrier frequency.

Accordingly, it is respectfully submitted that Munks neither teaches nor suggests at least one element of claim 3 and therefore does not anticipate that claim. Claim 3 is thus believed to be in condition for allowance.

Dependent claims 18-20, 26 and 28

Each of claims 18-20, 26 and 28 depends on claim 3 and therefore includes by reference all of the elements of claim 3. Hence, for the same reasons as those set forth above in respect of claim 3, it is respectfully believed that claims 18-20, 26 and 28 are in condition for allowance.

### **C. Rejection of Claims 4-17, 21-25, 27, 30 and 32 under 35 USC 103**

On pages 9 to 16 of the Office Action, the Examiner has rejected claims 4-17, 21-25, 27, 30 and 32 under 35 USC 103(a) as being unpatentable over U.S. Patent 6,134,253 to Munks *et al.* (hereinafter referred to as “Munks”) in view of one or more of the following references:

- U.S. Patent 6,532,099 to Fuse (hereinafter referred to as “Fuse”)<sup>1</sup>;
- U.S. Patent 4,777,664 to Khoe (hereinafter referred to as “Khoe”);
- U.S. Patent 4,842,358 to Hall (hereinafter referred to as “Hall”);
- U.S. Patent 3,670,166 to Kaminow (hereinafter referred to as “Kaminow”); and
- U.S. Patent 6,643,470 to Iida (hereinafter referred to as “Iida”).

Firstly, dependent claims 30 and 32 have been cancelled and thus the Examiner’s rejection of these claims is moot.

Secondly, each of claims 4-17, 21-25 and 27 depends on claim 3 and therefore includes by reference all of the elements of claim 3, including those that have already been shown to be missing from Munks, namely an optical signal generator comprising:

- “a multi-channel optical filter [...] having a plurality of filter output ports”; and
- “for each target carrier frequency, a first detection unit and a second detection unit respectively associated with said target carrier frequency [and] each connected to a different one of the filter output ports, [...] wherein the filter output port connected to one of the first detection unit and the second detection unit respectively associated with a first target carrier frequency is connected to one of

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<sup>1</sup> The “Notice of References Cited” attached with the Office Action lists two references for which “Fuse” is the inventor, namely U.S. Patent 6,532,099 and U.S. Patent 6,512,619. In the rejections of claims based on a combination of Munks with “Fuse”, the Examiner does not indicate which of these two patents is being referred to. From the passages of “Fuse” cited by the Examiner, it appears that the rejections refer to U.S. 6,532,099. In any event, the Applicant also reviewed U.S. Patent 6,512,619 and respectfully submits that this patent also fails to disclose or suggest the elements of claim 3 that have already been shown to be missing from Munks.

the first detection unit and the second detection unit respectively associated with a second target carrier frequency different from the first target carrier frequency".

It is respectfully submitted that none of the above-identified references teach or suggest the above elements of claim 3 that have already been shown to be missing from Munks.

Accordingly, it is respectfully submitted that there is at least one element of each of claims 4-17, 21-25 and 27 that is neither taught nor suggested in the cited references, and thus that there is at least one criterion required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j) which has not been satisfied<sup>2</sup>. The Examiner is therefore respectfully requested to withdraw the rejections of claims 4-17, 21-25 and 27, which are believed to be in condition for allowance.

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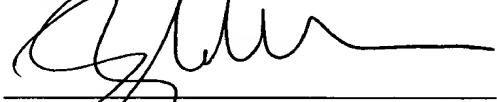
<sup>2</sup> For the Examiner to establish a *prima facie* case of obviousness, three criteria must be considered: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art references must teach or suggest all of the claim limitations. MPEP §§ 706.02(j), 2142 (8<sup>th</sup> ed.).

### III. CONCLUSION

In view of the foregoing, the Applicants are of the view that claims 3-28 and 37 are in condition for allowance. Favourable reconsideration is requested. Early allowance of the application is earnestly solicited.

If the application is not considered to be in full condition for allowance, for any reason, the Applicants respectfully request the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 707.07(j) or in making constructive suggestions pursuant to MPEP 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,



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